

Backward Integration of Supply Chain Management: A Case Study

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Abstract-- A supply chain consists of all parties involved, directly or indirectly in fulfilling a customer request. Supply chain management activities are integrated in four forms i.e. vertical, horizontal, forward and backward. Backward integration is a form of vertical integration. The concept of contract farming is a type of backward integration of supply chain management in which purchasing procedure of raw material is done in effective manner. It is widely popular in agricultural industry. Contract farming is a system for the production and supply of agricultural produce under forward contracts between producers/suppliers and buyers. The result of case study shows that the concept of contract farming is implemented to improve the supply chain procedure of raw material which reduces the cost of uncovered moth and gram pulses.

Keywords-- Supply chain management, Backward integration, Contract farming.

I. INTRODUCTION

Supply chain is the network structure which is a combination of various stages such as customers, retailers, distributors, manufacturer and raw material suppliers. Purchasing, operation, distribution and integration are the major elements of supply chain management. [1]

Supply chain management activities are integrated in four forms i.e. vertical, horizontal forward and backward. Backward integration is a form of vertical integration. It is a strategy where a firm gains ownership or increased control over its previous suppliers. Backward integration strategy is most beneficial when firm's current suppliers are unreliable, expensive or cannot supply the required inputs. Some of the models of backward integration of supply chain management are implemented in oil industry, agriculture industry and Media industry. The concept of contract farming is a backward integration of supply chain management which is widely popular in agricultural industry. [2]

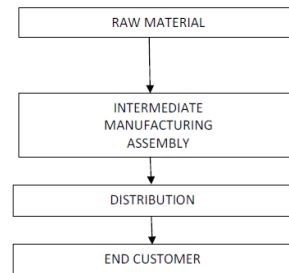


Fig-1 Backward Integration of supply chain Management.

Contract farming is a backward integration of supply chain management. It basically involves four things-pre-agreed price, quality, quantity and time. The food and agriculture organization (FAO) defined contract farming as partnership with growth. It is an approach that can contribute to both increased income for farmers and higher profitability for companies. [3]

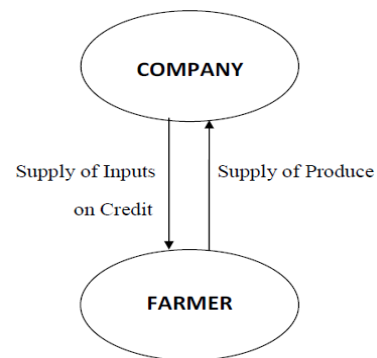


Fig-2 Contract Farming

According to Glover and Kusterer (1990), contract farming is an arrangement between a farmer and a firm where the farmer produces a product and the firm is committed to buying it under certain conditions [4].

According to Key and Runsten (1999), contract farming is a form of vertical integration of supply chain management. [5]

According to Huang (2009), the study of contract farming in Gambia shows that contract farming is profitable for both company and farmer in which cost of raw material is reduced. [6]

According to Arumugam (2010), the study of contract farming in Malaysia shows that contract farming is effective mechanism to integrate farmers to market and improve their livelihood. [7]

II. PROBLEM FORMULATION AND METHODOLOGY

The problem formulation and methodology is related to case study of supply chain system of Bhujia in X industry.

A. Problem formulation.

The supply chain is one of the important systems of any production unit. For the supply chain system of Bhujia in X industry, farmer supply the raw material to the mandi, then raw material is supplied to mills. Finally raw material is supplied to the firms. The raw material used for making bhujia involves uncovered moth and gram pulses, spices and oils. The figure shows the supply chain system of bhujia.

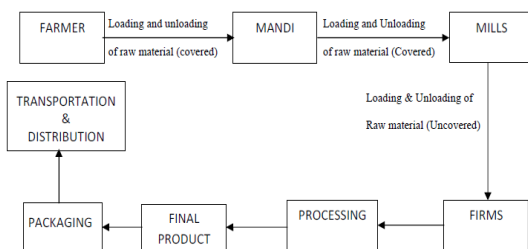


Fig-3 Supply chain system of Bhujia

The raw material supply procedure is time consuming and high cost structure. This procedure do not involve contract farming concept. The raw material which needs to contract farming is pulses. Pulses which are used in the production of bhujia are uncovered moth and gram pulses. Pulses are analyzed according to major agriculture area for the purpose of application of contact farming, which are used in manufacturing process. Main objective is to reduce the cost of uncovered moth and gram pulses.

B. Methodology:

The cost of uncovered moth and gram pulses are reduced by contract farming concept. Contract farming involves no loading and unloading of pulses to the mandi, in this system farmer supplies the pulses to the firm and then it is supplied to the mills for processing.

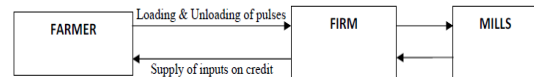


Fig-4 Contact farming of pulses

During the processing of pulses in the mills a special cattle feed is generated which is on sale get profit to the company. The following methodology is adopted for cost calculation of Bhujia after contract farming application.

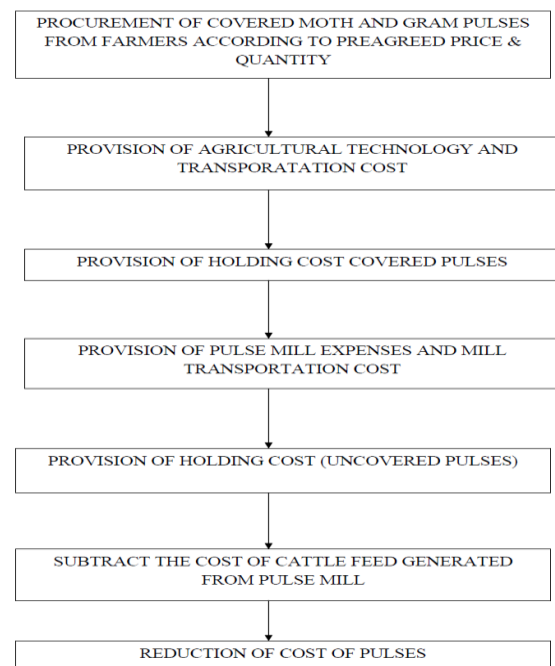


FIG-5 Methodology of Cost Calculation of Bhujia

III. EXPERIMENTAL OBSERVATION (CASE STUDY)

Experimental observation is related to Bhujia products in X industry. The observation is taken in the month of June 2012. During the observation, raw material cost is analyzed during manufacturing process. In the month of June 2012, the quantity of Bhujia manufacturing is 450 tonnes. In the Bhujia manufacturing, as a raw material, the cost of uncovered moth and gram pulses are analyzed.

TABLE: 1
Raw material cost for Bhujia manufacturing before contract farming application

S.No.	Raw Material	Qty. (Tonnes)	Total Cost (Rs.)
1.	Uncovered Moth Pulse	216	8640000
2.	Uncovered Gram Pulse	45	2295000

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Thus, the cost of uncovered moth and gram pulses are needed to analyze because these pulses in its natural form are major agricultural content in the Particular area and these cost can be reduced by contract farming concept.

IV. CONCLUSION

After applying contract farming concept, the total cost of uncovered moth and gram pulses will be reduced. The total cost of uncovered moth pulse is reduced from Rs. 8640000 to Rs. 7968407. The total cost of uncovered gram pulse is reduced from Rs. 2295000 to Rs. 2131797. Thus, profit of the industry will be 7.7% for uncovered moth pulse and 7% for uncovered gram pulse. By applying contract farming, the raw material cost may decrease and profit may increase. Thus contract farming is a backward integration of supply chain management.

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